National Park Service
U.S. Department of the Interior

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Zoonotic & Environmentally Transmitted Diseases (ZED) Steering Committee

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Integrated Pest Management (IPM)
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970-225-3542 (West)

Public Health
202-513-7226

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970-225-3593

Web Resources

IPM Program:
http://www1.nrintra.nps.gov/ipm/index.cfm

Public Health:
http://www.nps.gov/public_health/intra/

Risk Management:
http://www.nps.gov/riskmgmt/

Wildlife Health:
http://inside.nps.gov/programs/program.cfm?prog=304&div=54&page=home

CDC:
http://www.cdc.gov

State and Local Health Departments:
http://www.cdc.gov/mmwr/international/relres.html

West Nile Virus Health Issues

Humans are infected via the bite of a WNV-infected mosquito, and over the past three years the impact on human health in the United States has steadily increased with 4,071 cases and 274 deaths reported in 2002. The majority of human infections do not result in illness, with only 20% of infections developing into West Nile fever. Human disease is characterized by a febrile, flu-like illness with quick onset, usually 3-6 days, and moderate to high fever lasting 3-5 days. Other typical symptoms include fever, headache, and body aches, occasionally with a skin rash on the trunk of the body and swollen lymph glands. The symptoms of severe infection (West Nile encephalitis or meningitis) include headache, high fever, neck stiffness, stupor, disorientation, coma, tremors, convulsions, muscle weakness, and paralysis. Until the Romanian epidemic of 1996, no neurologic involvement had been observed among patients. It is now typical for severe clinical disease to present with neurologic manifestations.

The very young, elderly, and those with weakened immune systems are most at risk of developing clinical disease – median age among this year's fatalities was 78 (range: 24–99 years). The majority of infections are asymptomatic, less than one-percent (1 in 150) results in severe clinical illness. It is believed that infection and the subsequent development of antibodies leads to lifelong immunity. The virus is not directly transmitted from person-to-person, but indirect transmission through the transfusion of infected blood, transplantation of infected organs, and consumption of infected breast milk has been observed.

There is no specific treatment for West Nile encephalitis; intensive supportive therapy is provided to patients with clinical illness. The National Institutes of Health has funded research for the development of a vaccine as well as antiviral therapy. A Cambridge, Massachusetts biotechnology firm, Acambis, has developed a WNV candidate vaccine based on the existing vaccine for Yellow Fever. The vaccine, ChimeriVax-West Nile®, is in the pre-clinical stages of human trials, more than a year from FDA approval and licensing. Research into antiviral drugs for the treatment of WNV infection is taking place and there are several investigational new drugs in the pipeline. Researchers are also screening large numbers of approved drugs in order to determine whether existing antivirals are effective against WNV.

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